

Claims

What is claimed is:

1. A motor-operated power steering device, comprising:
 - a ball screw mechanism having a ball screw nut and a ball screw shaft connected to a steering mechanism;
 - a steering shaft to which a steering force is inputted;
 - a torque sensor for detecting a steering torque generated on said steering shaft;
 - a motor for generating a steering assist power on the basis of a signal from said torque sensor, said steering assist power being transmitted through said ball screw mechanism to said steering mechanism; and
 - an elastic member disposed at a portion supporting said ball screw nut, said elastic member being deformable so as to absorb an impact.
2. A motor-operated power steering device according to Claim 1, wherein said device comprising;
 - controlling means for controlling said motor on the basis of a steering assist order value calculated at calculating means based upon said steering torque generated on said steering shaft, and upon an electric current control value calculated based upon an electric current value of said motor; and
 - assist calculating means for differentiating said signal of said steering torque and adding it to said steering assist order value.
3. A motor-operated power steering device according to Claim 1, wherein said motor is controlled on the basis of a steering assist order value calculated based upon said steering torque generated on said steering shaft, and upon an electric current detected value of said motor providing a steering assist power to said steering mechanism; said device comprising;
 - a torque filter processing a torque signal,
 - a SELF ALIGNING TORQUE estimation functional section, and

a SELF ALIGNING TORQUE filter processing a SELF ALIGNING TORQUE information form said SELF ALIGNING TORQUE estimation functional section, wherein a steering feeling and a frequency characteristic of a road information sensitivity are designed independently to each other, in a two-dimensional flexibility control system.

4. A motor-operated power steering device according to Claim 3, wherein a gain of said steering feeling can be designed to maintain a constant value to a frequency as higher as possible.
5. A motor-operated power steering device according to Claim 3, eliminating information a frequency zone in which said road in from said road information sensitivity is not necessary.
6. A motor-operated power steering device according to Claim 5, wherein said frequency zone is 10Hz to 30Hz.
7. An electrically driven power steering apparatus comprising:
 - a housing;
 - a ball screw shaft extending within said housing and connected to a steering mechanism;
 - an input shaft to which a steering force is inputted;
 - an output shaft for receiving the steering force from said input shaft and outputting the steering force to said ball screw shaft;
 - a torque sensor for detecting a torque transferred between said input shaft and said output shaft;
 - a motor including a rotor; and
 - a ball screw nut for giving a force acting in an axial direction to said ball screw shaft by receiving a rotational force from said motor,wherein an elastic member deforming and thus capable of absorbing an impact inputted from the side of said ball screw shaft, is disposed on a support portion of said ball screw nut.

8. An electrically driven power steering apparatus according to claim 7, wherein said elastic member is disposed between said housing and a bearing for supporting said ball screw nut so as to be rotatable with respect to said housing or between said bearing and said ball screw nut.